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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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July 30, 1998

Mr. Bryan Foley
U.S. Department of Energy
P.O. Box 550, MSIN: A5-19
Richland, WA 99352

Mr. Marvin Furman
U.S. Department of Energy
P.O. Box 550, MSIN: H0-12
Richland, WA 99352

Dear Messrs. Foley and Furman:

Re: Comments on Ground Water Monitoring Plan for Hanford Site 216-B-3 Pond Resource Conservation and Recovery Act Facility (Document # PNNL-11903) 49420

Enclosed are the Washington State Department of Ecology's (Ecology's) comments on the above cited document. Ecology is requesting that the U.S. Department of Energy (USDOE) respond to these comments within thirty (30) days of receipt of this letter. A draft set of the same comments was sent electronically to Mr. Marvin Furman, USDOE, and Pacific Northwest National Laboratories on July 21, 1998. Ecology expects that the additional thirty (30) days for comment response should be sufficient.

If you have any questions or concerns, please contact me at (509) 736-3012.

Sincerely;

Ted A. Wooley, B Plant/WESF Project Manager
Nuclear Waste Program

TAW:sdb
Enclosure

cc: Mary Hartman, PNNL
Mary Lou Blazek, OOE
Administrative Record: 216-B-3 Pond

Ecology Comments on the Ground Water Monitoring Plan for the Hanford Site 216-B-3 Pond RCRA Facility

Section: Summary, paragraph 2, first sentence:

1) Comment: The phrase "found to exceed critical means" is unfamiliar to the Ecology B Area Project Manager. Is critical means regulatorily based? Please clarify this.

Requirement: Based on clarification, the document may need to be revised. If there is a regulatory limit for the subject parameters (i.e., TOH, TOC) this will need to be added to the paragraph.

Section: Summary, paragraph 2, second sentence:

2) Comment: How and when was the ground water (GW) quality assessment performed? Was Ecology involved and, if so, how?

Requirement: Revise plan to reference pertinent documents that support the results of the GW quality assessment.

Section: Summary, paragraph 3, first sentence:

3) Comment: Please Clarify what is meant by "Exhaustive groundwater analysis." What reports include the results of the ground water analysis for the assessment period? Is there any documentation to verify Ecology's concurrence with the results of the analysis?

Requirement: Please provide answers to above questions and revise the plan to reference pertinent documents that support the results of the groundwater analysis.

Section: Summary, paragraph 3, second sentence:

4) Comment: The sentence suggests that contamination may exist at greater depths in the vadose zone. What is the current estimated depth?

Requirement: Revise document to estimate depth of potential contamination.

Section: Summary, paragraph 5:

5) Comment: Unless final agreement on input parameters is made between Ecology and USDOE on the shewhart-CUSUM model, this statistical approach will not be acceptable.

Requirement: This paragraph may need to be removed or revised based on ongoing discussions regarding statistical methods.

Section 1.1, "Objectives and Scope," second paragraph:

6) Comment: The Data Quality Objective (DQO) process described within the paragraph is still ongoing. More importantly, no formal agreements have come out of these DQO discussions (for ground water management) between Ecology and USDOE.

Requirement: Remove this paragraph or revise to indicate that many issues regarding GW monitoring in general are unresolved.

Section 1.1, "Objectives and Scope," second paragraph, first sentence:

7) Comment: Ecology is currently unaware of agreements made between USDOE and Ecology regarding departure from interim-status regulations for a treatment, storage, and disposal facility (TSD) that has not gone through closure pursuant to WAC-173-303-610. Transitioning from interim-status requirements to final status requirements is reserved for either inactive TSDs which have gone through closure or active TSDs which have met final status permitting requirements. "Emulating" final status regulations is not a defined regulatory pathway.

Requirement: Please explain what is meant by "emulating final status regulations."

Section 1.3, "Regulatory Status," page 1.7:

8) Comment: The conclusions presented in this section (i.e., bullet items) are based on information provided in an early document # WHC-EP-0813. This document references various past documents that have been written in support of ground water management in the 200 Area. Without going back through all of the referenced material, concurring with the conclusions is difficult at best.

Requirement: Revise the second paragraph, last sentence to read; "This report addressed . . . of the B Pond System until 1997. The following bullets represent some working assumptions that were drawn from this report."

Ecology is concerned that the "conclusions" as written may or may not be completely valid. Further characterization should help confirm whether they are valid or not.

Section 3.1.1, page 3.2, second paragraph:

9) Comment: The third sentence defines "potential contaminants" as being those known to have been used but have not been recorded in present discharges. What data supports this statement?

Requirement: Revise the sentence to include appropriate reference to the supporting data.

Section 5.2, second paragraph:

10) Comment: Has the conceptual model referred to been validated or will it be by this monitoring plan? What is meant by "minor degree of risk?"

Requirement: Please explain how validating the conceptual model was done or will be done. Also explain how the risk assessment was performed to conclude that it is unlikely that contaminant remobilization will occur.

Section 6.0:

11) Comment: Only a partial closure of the B-pond system has been accomplished. Therefore, interim-status requirements still apply to this TSD. Interim-Status requirements/objectives are not sufficiently addressed within section 6.0.

Requirement: Add a sub-section to section 6.0 that discusses interim-Status requirements/objectives.

Section 6.2, page 6.2:

12) Comment: The parenthetical just after " . . . a statistically significant increase (or pH departure)," should be revised to read "(i.e., pH departure)." Other parameters such as conductivity, total organic carbon (TOC) will cause compliance monitoring to be initiated.

Requirement: Revise sentence as directed above.

Section 6.6, page 6.5:

13) Comment: The well selection process described does not reference any specific regulatory requirements. WAC-173-303-400 stipulates both the state and federal interim-status requirements for land base units (i.e., ponds, cribs, trenches, etc). 40 CFR 265.91(a)(1) and (2) specifies the well configuration required for ground water monitoring. At least one well must be installed hydraulically upgradient in the direction of increasing static head, and at least three must be installed hydraulically downgradient in the direction of decreasing static head. The first paragraph after the last bullet discusses the impracticality of selecting a "true" upgradient based on a mounding effect. Since this plan does not provide much information in the way of hydrology, it is very difficult to agree with this statement. Ecology recognizes the need for some flexibility in developing a suitable well configuration, and that "a one up, three down" configuration may not be realistic. Whatever configuration is chosen, it must be comparable to what the regulations require.

Ecology is concerned that the regulatory requirements for well configuration are not being adequately addressed with the proposed selection process.

Requirement: Please explain how the state and federal regulatory requirements for well configuration are being met by implementing section 6.6.

Figure 6.1, page 6.6:

14) Comment: Although ground water flow is indicated in Figure 2.3., "Potentiometric Map of the B Pond Area for June 1997," it is not shown in Figure 6.1. Since Figure 6.1 is depicting the

downgradient wells, it would be prudent to also show the ground water flow. Ecology understands that the ground water flow appears to be radial in nature making it difficult to specify an upgradient well; however one should be specified to the best of the contractors ability. There must be sufficient information against using the inter-well comparison before the intra-well comparison can be fully adopted.

Requirement: Revise Figure 6.1 to include direction of ground water flow. Also, an upgradient well will be identified.

Section 6.8.1, first bullet:

15) Comment: Why are no unit specific chemical indicator constituents identified in this section or section 6.4.?

Requirement: Please explain how the unit specific chemical indicator constituents and contaminants of concern were decided upon.

Section 6.8.3, page 6.8:

16) Comment: Has the QA Plan (e.g., *EDT-012, Rev 0*) identified in the first paragraph ever been reviewed by Ecology staff? Appropriate sampling and analytical QA/QC is important to all agencies/entities that actually use the data. Different levels of decision making require different levels of data quality. If Ecology staff has not reviewed, and at least concurred with the contents of this document, then it may not be suitable for meeting regulatory requirements (i.e., SW-846 methodology).

Requirement: Please supply a copy of the latest revision of EDT-012. If Ecology already has a copy, disregard this comment. However, review of this document will be part of overall approval of this ground water monitoring plan. Please supply the transmittal date for EDT-012 if applicable.

Section 6.8.3, page 6.8:

17) Comment: The discussion on the number of casing volumes that will be withdrawn is somewhat unclear. Is the minimum number of volumes 3, or could it be less based on when stabilization of field parameters occurs in the process?

Requirement: Please clarify the actual minimum number of pour volumes that will be required during field sampling events.

Section 6.8.4, page 6.8:

18) Comment: Who decides on when a "alternate equivalent" laboratory procedure required and whether it is actually equivalent to SW-846? Ecology requires involvement for making these types of determinations.

Requirement: Clarify how this process works. Also follow-on discussions on when and how these determinations are made will be part of the approval process.

Section 6.9, page 6.9, first paragraph, last sentence:

19) Comment: The last sentence states that the EPA technical and ASTM guidance will be followed. Ecology will ultimately approve what will be used for guidance and what will not be used. It is possible that some sections of the referenced guidance will be acceptable by Ecology, but this still needs to be worked out for the B Area.

Requirement: Pending outcome of present/future discussions of statistical modeling this section may be revised.

Section 6.9.1, page 6.9-6.11:

20) Comment: Further discussion is required for this entire section. Transitioning from interim-status to final-status monitoring prior to final closure or permitting may not be viable for some specific TSDs. The only way that this can occur is if there is sufficient contaminant information both for the ground water and for the vadose zone. If contamination exists within the vadose zone of a particular TSD, the regulations do not allow the associated ground water to go to final status, unless it can be proven that there is minimal chance that the contamination within the vadose zone will, at some point, mobilize to ground water. In other words, full characterization of the vadose zone (plume delineation) is a mandatory part of making the decision to transition onto final status monitoring.

Requirement: Ecology and USDOE will need to discuss the regulatory options available for "departing" from interim status requirements prior to closure under RCRA.

Section 6.9.2, page 6.11, item #1:

21) Previous discussions (mainly 300 APT) between Ecology and PNNL have focused on balancing type I/typeII error rates. It is important that the authors of this plan realize that the same argument applies for the B Area. Ecology understands that USDOE/PNNL want to minimize the type I error rate primarily because of the cost involved. However, Ecology's concern, as with 300 APT, is that minimizing type I error cannot/will not be done at the expense of having an unacceptably high type II error rate.

Requirement: Revise the statistical goals to include minimizing type II error rate.

Section 6.9.2, page 6.12, second bullet:

22) Comment: Please see comment 21.

Requirement: Revise this bullet, explain how the shewhart-CUSUM will manage the false negative error rate.

Section 6.9.2, page 6.13, first paragraph:

23) Comment: The last sentence; "Thus, as groundwater returns . . . intra-well comparisons may yield too many false positives." is another example of putting all of the emphasis on false positives and none on false negatives.

Requirement: Please revise this section to address type II error rate.

Section 6.9.3.2, page 6.16, second paragraph:

24) This paragraph discusses "maintaining adequate power." The power curves presented are based on a SCL= 4.5, which allows using a very high control limit, and minimizes the false positive rate while allowing the false negative rate to go uncontrolled for at least the first round of sampling. Ecology does not agree that this represents "maintaining adequate power."

Requirement: Further discussion will occur to refine the input parameters so Ecology will allow use of the shewhart-CUSUM model.

Section 6.9.5, page 6.19, second paragraph:

25) Comment: What is the "trigger value" for the proposed chemical constituents, arsenic and nitrate?

Requirement: Revise this section to include all appropriate "trigger values."

Section 6.9.7, page 6-20:

26) Comment: Further discussion is required for handling outliers. It is not clear on how and who makes the decision on whether a data point is in fact an outlier or not. Ecology will expect to be notified if data is being labeled as an outlier and then discarded. Replacement sampling will need to be considered in the event an outlier is identified.

Requirement: Further discussion on outliers will be required. Revision of this section (based on future discussions) may also be required.